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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,392

02/10/2004

Frank Ted Marishak JR.

Marishak-001

8891

31331

7590

01/24/2006

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EXAMINER

BLOUNT, ERIC

ART UNIT

PAPER NUMBER

2636

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/775,392	MARISHAK, FRANK TED	
	Examiner	Art Unit	
	Eric M. Blount	2636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 1 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02102004</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on February 10, 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has being considered by the examiner.

### *Drawings*

2. The drawings are objected to because they fail to show drawing sheet numbers in accordance with 37 CFR 1.84(t). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. **Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).** If the examiner does not accept the changes, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claims 1 and 5 are objected to because of the following informalities: Each of the claims include "the thermal protection tile system" in the line 1 of the preamble. Applicant should amend the claims to read "a thermal protection tile system". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al [U.S. Patent No. 6,889,557 B2] in view of Laska [U.S. Patent No. 3,596,269].

Regarding **claims 1 and 5**, Richardson discloses a device for monitoring the integrity of a structure comprising at least one pair of electrical conductors (104, 106) extending along and in contact with multiple segments (114) of a system. Multiple resistors (110, 112) of known resistance extend between each of the at least one pair of electrical conductors and each one of the multiple resistors are in contact with one of

the multiple segments (Figure 1). Richardson teaches that the system can be used to monitor the integrity of an aircraft (column 11, lines 23-31). Thermal protection tile systems were well known in the art at the time of the invention by the applicant (see cited references). The segments 114 of Figure 1 reasonably meet the limitation of tiles, as recited in the claim, when the Richardson invention is used to monitor an aircraft. Richardson discloses resistance-measuring means (column 6, lines 30-42). The resistance measuring means (108) are connected to at least one end of the pairs of electrical conductors. It would have also been obvious to one of ordinary skill that computing means are necessary to perform the calculations taught by Richardson (column 6, line 42-column 7, line 43). The Richardson patent suggests that both resistance measuring means and computing means are encompassed by a receiver (108). Measurements are monitored in the at least one pair of electrical conductors in real-time and significant changes in the resistance through the at least one electrical conductor pair indicate a loss of integrity in the system or structure being monitored (column 6, lines 30-42). Richardson does not teach display means for providing real-time outputs.

In an analogous art, Laska discloses a structural defect-monitoring device for an aircraft. Laska teaches that at least one pair of electrical conductors (10) may be in contact with a structure to be monitored. When changes in resistance in the electrical conductors are detected by a measuring device (16) a visual or audible alarm may be energized to warn of a loss of integrity in the monitored structure. Laska shows a system including panel lights for each group of electrical conductors (Figure 3). The

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groups of panel lights reasonably appear to meet the limitation of a display connected to computing means for providing a visual indication of a significant resistance change (columns 1-column 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to modify the Richardson reference to include the display method and means taught by Laska because the modification would result in a device for monitoring the integrity of a structure wherein real-time measurements could be observed by an operator or attendant of a system being monitored. These types of monitoring and display systems were well known in the art at the time of the present invention. Where an aircraft is being monitored, it is obvious from the teachings of Laska that a pilot would use the real-time indications to determine what actions need to be taken to limit the damage caused by the loss of integrity.

As for **claims 2 and 3**, Richardson teaches that the at least one pair of electrical conductors may be embedded in or adhered to a structure being monitored (column 5, lines 48-57)

As for **claim 4**, Richardson does not specifically disclose that resistance measuring means are connected to both ends of the at least one pair of electrical conductors. However, Figure 6 shows that the electrical conductors may be installed on structures in a predetermined geometric structure (column 11, lines 4-14). It would have been obvious to one of ordinary skill in the art that if the electrical conductors were arranged around the circumference of a structure that the measuring means could be

connected to both ends of the conductors. Further, Richardson teaches that the location and extent of loss of integrity may be calculated (column 6, line 51-column 7, line 17).

Regarding **claim 6**, Richardson teaches a step of determining the actual magnitude of the difference between the measured resistance and a baseline resistance value (column 6, lines 30-38). The location of a loss of integrity may be determined by the change in magnitude (column 6, lines 51-65). As noted above, Laska discloses that an output is provided to a display means that is indicative of the location of a loss of integrity based on a change in resistance.

Regarding **claim 7**, it was noted above that Richardson suggests the step of connecting the resistance measuring means to two ends of the at least one pair of electrical conductors and teaches continually monitoring the resistance in the at least one pair of electrical conductors and providing an output to a display means that is indicative of the difference between the measured resistance and a baseline resistance. While Richardson is silent on the specific manner in which the measurements of each conductor is done, it would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant that resistance measuring could be done in a variety of ways. A skilled artisan would have recognized that redundant measurements would have been an obvious modification for reducing false alarms. Redundancy checks and measurements were well known in the art at the time of the invention by the applicant.

**Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. All cited references teach structural monitoring and/or aircrafts with thermal protection tile systems that were known in the art at the time of the present invention.

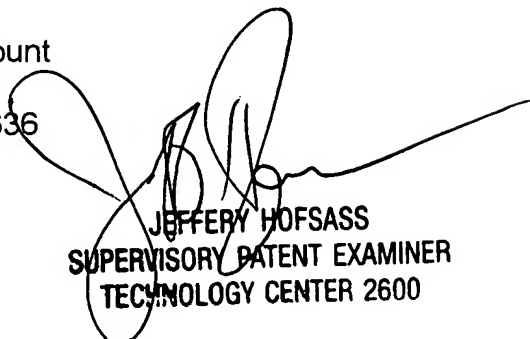
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric M. Blount whose telephone number is (571) 272-2973. The examiner can normally be reached M-TH between the hours of 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Hofsass can be reached on (571) 272-2981. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Eric M. Blount  
Examiner  
Art Unit 2636



JEFFERY HOFSSASS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600